



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,118	08/14/2002	Stephen Davis	J318-094 US	9689
21706	7590	12/16/2003	EXAMINER	
NOTARO AND MICHALOS 100 DUTCH HILL ROAD SUITE 110 ORANGEBURG, NY 10962-2100			HASHMI, ZIA R	
			ART UNIT	PAPER NUMBER
			2881	
DATE MAILED: 12/16/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/070,118	Applicant(s) DAVIS ET AL.	
	Examiner Zia R. Hashmi	Art Unit 2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2,7,9,10 and 12-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,7,9,10 and 12-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 August 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
     If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
     a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                               | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4/21/03</u> . | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

1. According to "Preliminary Amendment" received on March 1, 2003, claims 3-6, 8 and 11 have been canceled and new claims 15-20 have been added, as indicated.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, 7, 9-10, and 12-20 are rejected under U.S.C. 103(a) as being unpatentable over Rockwood et al. ( 5,777,326 ), in view of Cody et al. ( 5,077, 470 ).
4. With respect to independent claim 1, and dependent claims 14-16, Rockwood et al. disclose a mass spectrometer ( col. 5, lines 13-15 and 20 in Fig. 3A ) comprising an ion source to produce ions from a substance to be detected ( col. 1, lines 21-26 ) and detector means to detect a quantity of ions incident on the detection means ( col. 4, lines 36-38 ) wherein the detection means includes at least two detector elements ( col. 5, lines 26-36 ), each of which elements detect at least a part of the quantity of ions from the ion source ( col. 5, lines 15-26 ) and at least one detection element ( col. 4, lines 14-18 and 22 in Fig. 2A ) is connected to a time-to-digital converter (TDC) which

acts as timer, to allow counting of detected ions ( col.3, lines 4-19, 26-28 & 36-54, col. 4, lines 8-22 & 47-51, and Fig. 17-19 ) and each detector element comprises a separate plate anode ( 80 in Fig. 7 ).

5. With respect to claims 1-2, 9-10, 12-13, and 17-20, Rockwood et al fail to disclose detection elements connected in parallel to both a timing circuit like a TDC and an analog-to-digital converter (ADC) for ion detection. Cody et al., however, disclose detection elements being connected to a timer and an ADC in parallel for ion detection ( col. 4, lines 11-19 & 58-65, col. 6, claim 1(d), claim 13(e)-(g), 21 and 32 in Fig. 1 ).

It would have been obvious to one having ordinary skill in the art at the time of the invention was made to combine methods and apparatus of Rockwood and Cody et al. and add features like attenuation means for secondary electrons generated by the ions hitting the detector, or adding perforations of certain dimensions in the detection elements in combination with TDC, because Rockwood et al. teach ( col. 4, lines 4-7 ) that TDC has excellent signal averaging properties which improves linearly as the square root of time with respect to the detection limit over time.

### **Conclusion**

6. Whitehouse et al. disclose ( Pub. No: US 2002/01752292 A1 ) multiple detection systems using a time-of-flight mass spectrometer.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zia Hashmi whose telephone number is (703) 305-0419. The examiner can normally be reached between 8.30 AM- 5 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee

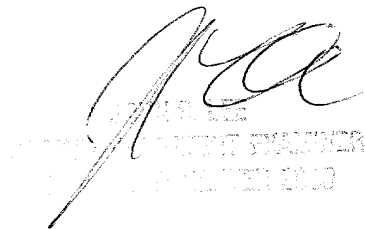
Application/Control Number: 10/070,118  
Art Unit: 2881

Page 4

can be reached on (703) 308-4116.

Zia Hashmi

October 7, 2003



A handwritten signature, likely of Zia Hashmi, is written in dark ink over a faint, rectangular official stamp. The signature is stylized and cursive. The stamp contains text that is mostly illegible due to fading, but appears to include the words "RECEIVED" and "OCT 10 2003".